RESEARCH DEPARTMENT

ACOUSTIC TESTS IN DUBBING SUITE 1, EAST BLOCK, TELEVISION CENTRE

Technological Report No. B-089/2
UDC 534·861·1 1966/11

D. Maurice

D.K. Jones, B.Sc., A.Inst.P., A.M.I.E.R.E., Grad.I.E.E.

for Head of Research Department

This Report is the property of the British Broadcasting Corporation and may not be reproduced in any form without the written permission of the Corporation.

March 1966

Technological Report No. B-089/2
UDC 534·861·1 1966/11

ACOUSTIC TESTS IN DUBBING SUITE 1, EAST BLOCK, TELEVISION CENTRE

SUMMARY

The installation of a new Dubbing Theatre and its associated Mixer and Recording Rooms has recently been completed in the East Block at Television Centre. Reverberation times and noise levels were measured in the three rooms and the sound insulation between the rooms taken in pairs was obtained. The results are given in Section 2, and their implications are discussed in Section 3.

1. INTRODUCTION

Measurements were made of reverberation times, background noise and sound insulation in Dubbing Theatre 1, its Mixer Room and Control Rooms, to assess the extent to which the design requirements had been met in the completed suite.

2. MEASUREMENTS AT TELEVISION CENTRE EAST BLOCK

2.1. Reverberation Times

The reverberation times for each of the three rooms are given in Fig. 1. The rooms were free from double decays and from flutters and echoes. It can be seen from the figure that the reverberation times measured in the mixer and recording rooms are appreciably less than the design figure which was 0·35 secs, but the theatre itself is approximately correct.

2.2. Noise Levels

The noise level in each of the three areas was measured and the octave band analysis is given in Fig. 2, together with the criterion curve for television studios. It will be noted that the noise levels in all the rooms exceed the tolerance figures. Ventilation noise is the only prominent noise present in the areas.

2.3. Sound Insulation

The sound insulation between theatre and mixer, theatre and recording room, and recording room and mixer were measured. The results are given in Figs. 3 and 4. The insulation between mixer and recording room is particularly poor. The failure in this insulation was traced to a badly fitting openable observation window between the two areas and to the parallel-action double leaf door dividing the areas. The fault was found to be that it was not possible to close the door properly due to some distortion of both its leaves. The poor insulation between the theatre and the mixer and between the theatre and the recording room could not be attributed to any obvious defect. The insulation requirement between the theatre and the recording room is the more rigorous, because the recorded signal, which is delayed relative to the sound in the theatre, will be monitored in the recording room; the required criterion is therefore that from a studio to a cubicle carrying a different programme.

3. DISCUSSION OF RESULTS AND RECOMMENDATIONS

3.1. Reverberation Times

Reference to Fig. 1 shows that the designed reverberation times have been achieved in the theatre. In both the mixer and recording rooms the measured reverberation times are much shorter than the designed reverberation times. It is not unusual for the reverberation times of cubicles to be shorter than the design figure and it has been assumed that this is due to the presence of large amounts of technical equipment which will increase the diffusion in the cubicle and hence increase the efficiency of the absorbers. In the mixer and recording rooms the volume occupied by equipment cabinets, desks and seats, relative to the volume of the room, is far greater than in normal control cubicles. This could well account for the very short reverberation times measured in these areas. The reverberation time should be adjusted by removal of some of the absorbing units.

3.2. Sound Insulation

The double-leaf parallel-action door between the mixer and recording rooms should be adjusted to ensure that it closes tightly on its seals. The double-glazed window between recording and mixer rooms also needs adjustment. It is probable that, when both the door and the window close properly, the insulation will be acceptable.

No obvious leakage paths from the theatre to the recording room could be found to account for the somewhat poor insulation. Should the insulation prove insufficient in service, a more detailed investigation will have to be undertaken.

3.3. Background Noise

The noise levels in all three areas greatly exceed the permissible levels for television studios and associated cubicles. It would be necessary to examine the ventilation plate in some detail to determine the cause of the excessive noise in order to prescribe the modifications required for the reduction of the ventilation noise to acceptable levels.

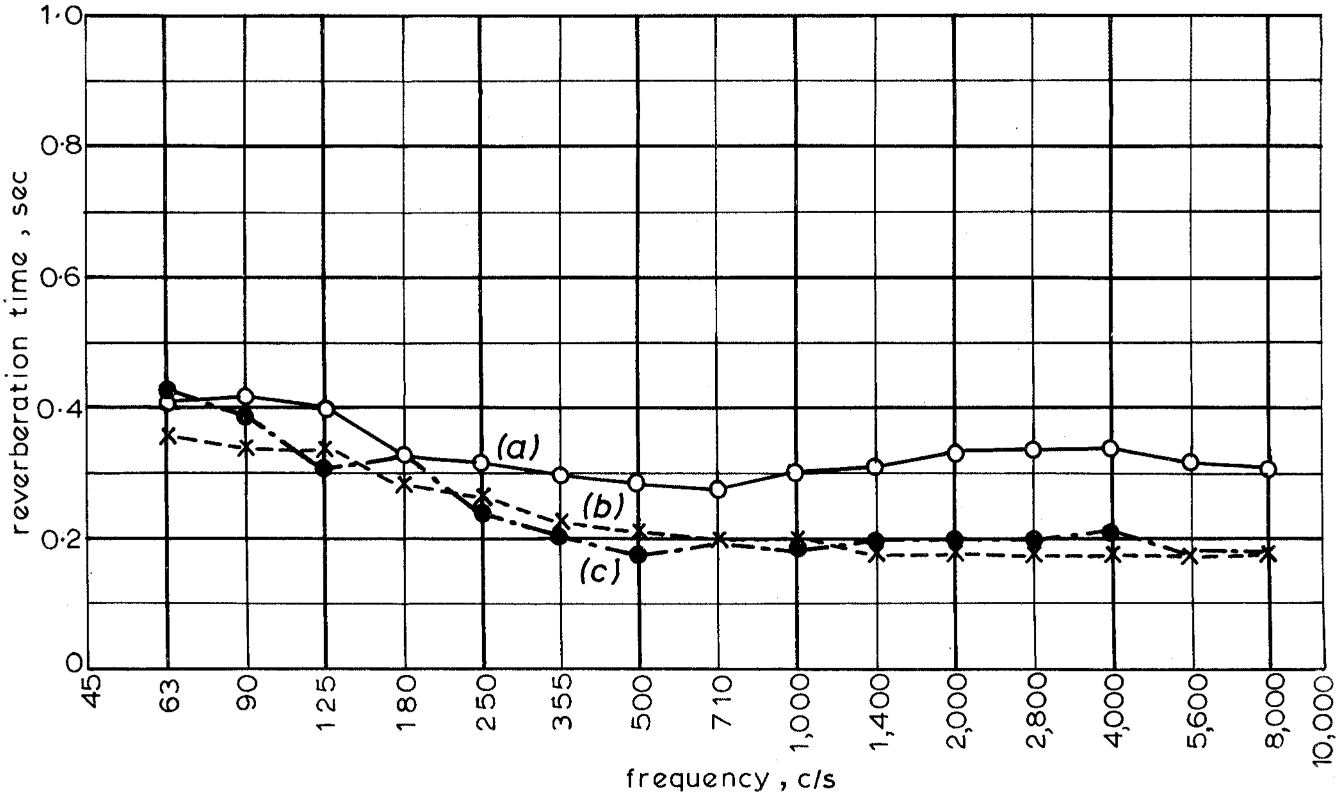

Fig. 1 Reverberation times

(a) Dubbing theatre *(b)* Mixer room
(c) Recording room

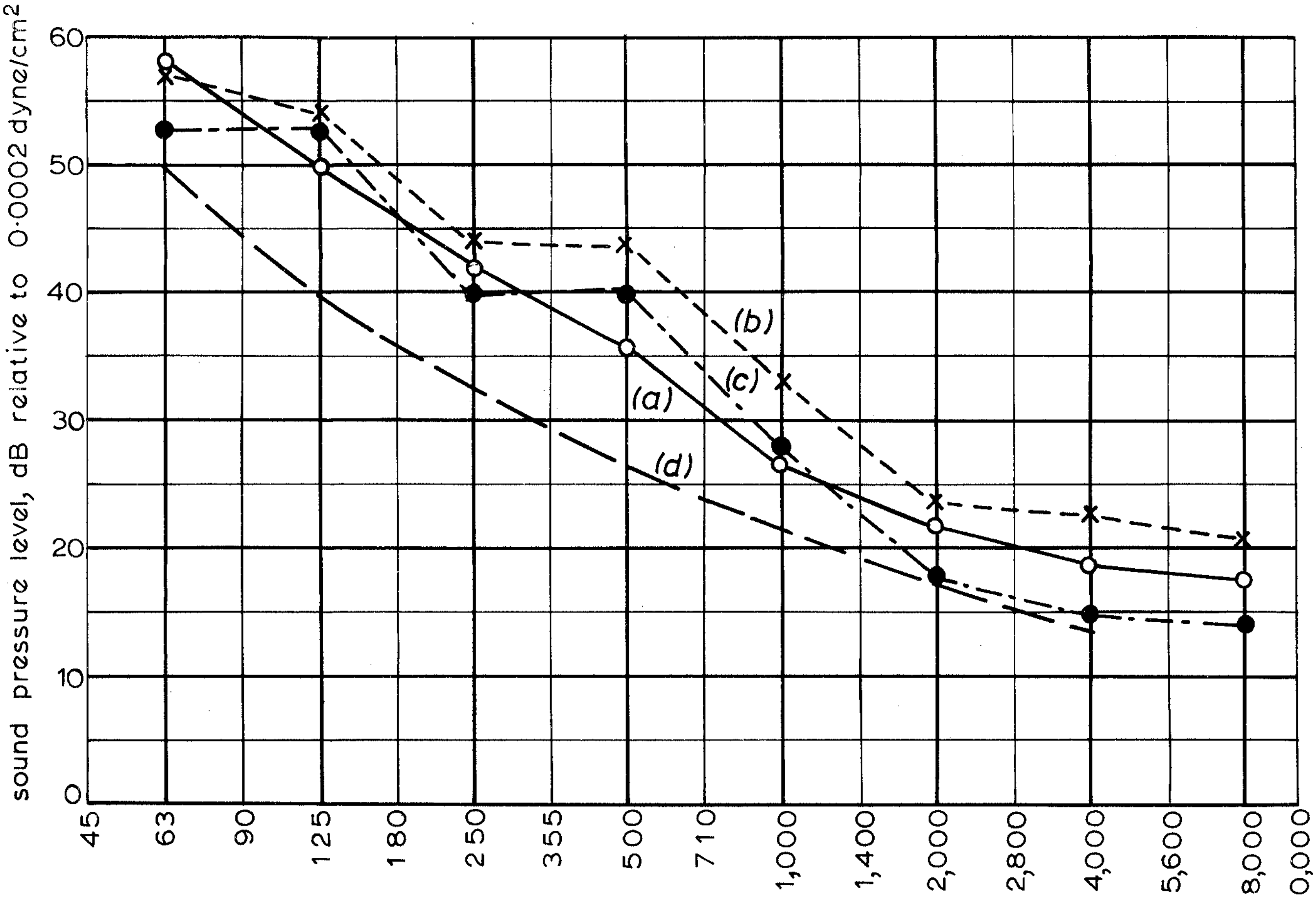

Fig. 2 Noise levels

(a) Dubbing theatre *(b)* Mixer room
(c) Recording room *(d)* Criterion curve

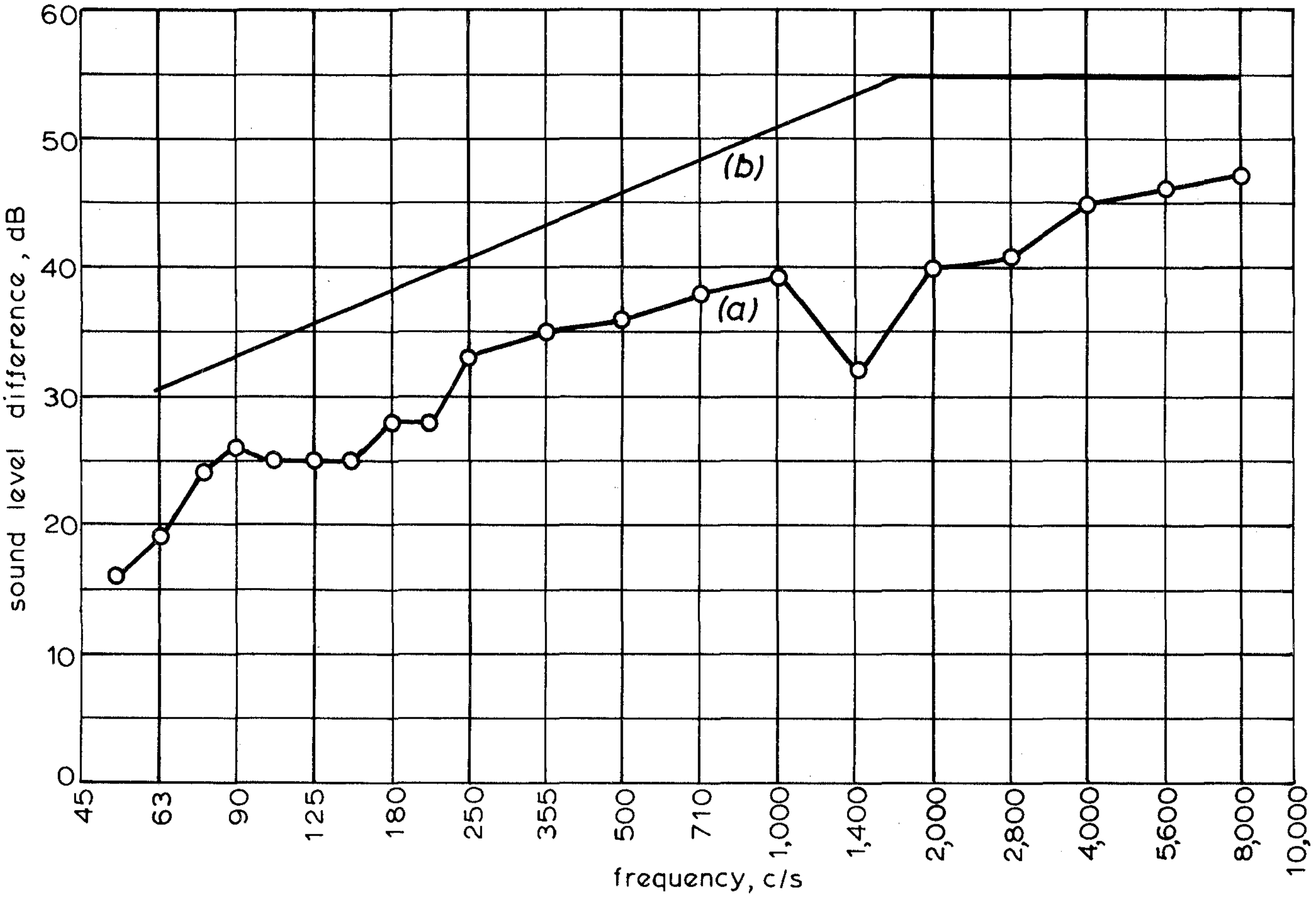

Fig. 3 Sound level difference

(a) Recording room to mixer room *(b)* Criterion curve

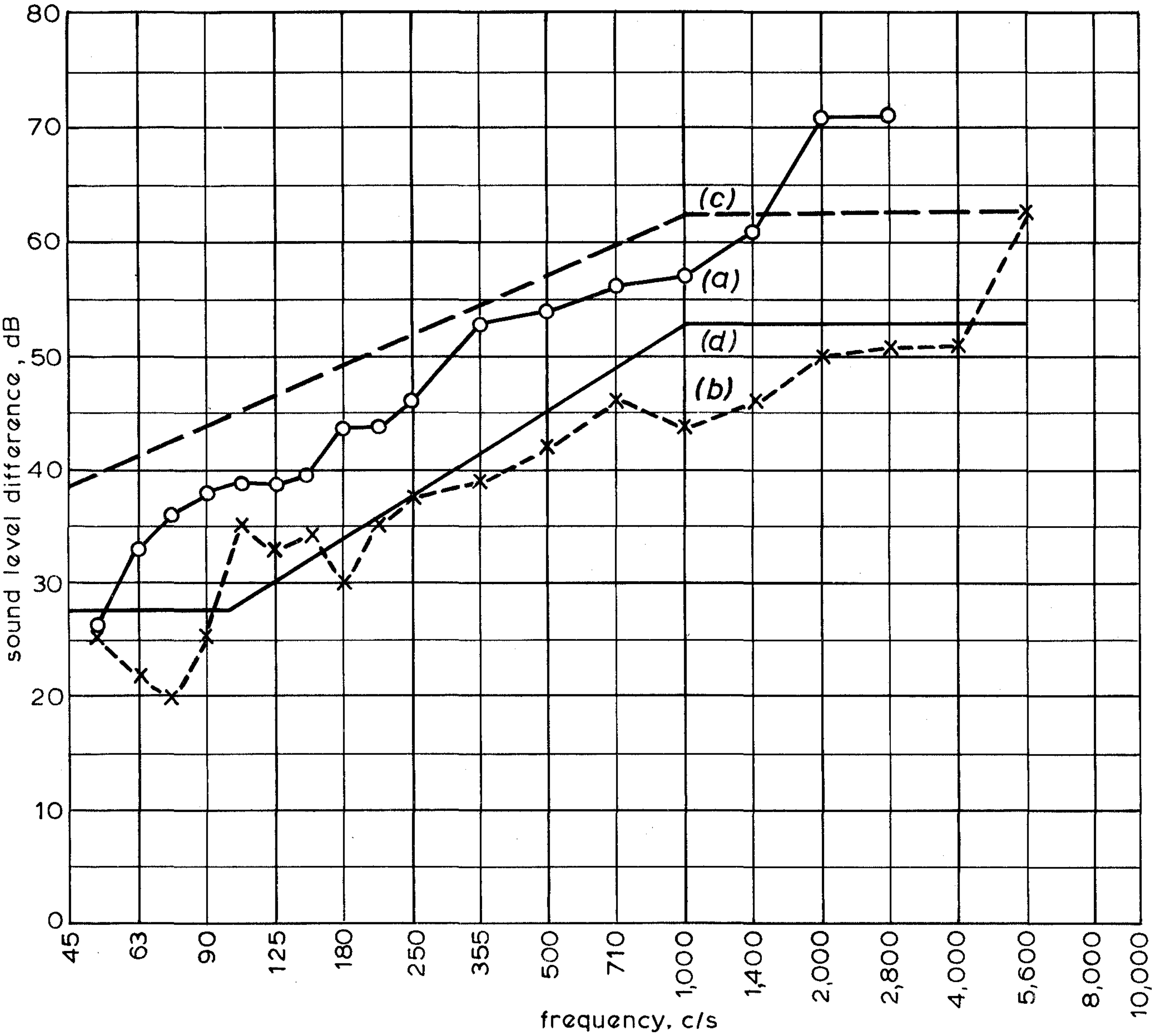

Fig. 4. Sound level differences

(a) Dubbing theatre to recording room.

(b) Dubbing theatre to mixer room.

(c) Required insulation: studio from cubicle monitoring another programme.

(d) Required insulation: studio from own cubicle.

Printed by BBC Research Department, Kingswood Warren, Tadworth, Surrey